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made. The thermal death point was not ascertained, but it is evidently much above that of the mycelium grown upon agar (see table VI). The fact that new growth, or further growth, did not appear upon some of the insects was expected, since sterilization precautions could not there be observed, and foreign molds were sometimes present.—B. M. DUGGAR, *Cornell University, Ithaca, N. Y.*

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## DESCRIPTIONS OF TWO WILLOWS FROM CENTRAL MEXICO.

(WITH FIGURES 1, 2.)

THE two willows here described were collected by Mr. Pringle at Sierra de Ajusco in the state of Mexico. They were collected at an altitude of 10,000 feet. The descriptions of Mexican willows are meager and imperfect. Anderson in the *Prodromus* gives them very little attention, probably having only scanty material from that region, and with very little literature from which to make up descriptions.

The writer wishes to express his gratitude to Dr. Robinson and Mr. Greenman of the Gray Herbarium not only for the opportunity to study the specimens but also for much information regarding the Mexican species.

**Salix Pringlei**, n. sp.—Shrub 1 to 2<sup>m</sup> high: twigs of season's growth minutely hoary puberulent, older shoots dull olive green or brownish: leaves in veneration densely tomentose and slightly ferruginous, at maturity becoming nearly glabrous and dark green above, paler and velvety tomentose beneath, entire (or obscurely crenate on vigorous young shoots), elliptical, acute at both ends, largest 6<sup>cm</sup> by 2<sup>cm</sup>, on petioles 5<sup>mm</sup> long; stipules none: pistillate ament at anthesis nearly sessile in its leafy bracts, 2<sup>cm</sup> long by 1<sup>cm</sup> thick, subcylindrical: young capsule ovate-lanceolate, densely tomentose, grayish, 3<sup>mm</sup> long, very short pedicelled; scale twice the length of the pedicel, elliptical, black, with rather long crisp hairs on its margin; gland small, one-half as long as the pedicel; style very short; stigmas bifid: pistillate aments at maturity large (6–8<sup>cm</sup> long by 2<sup>cm</sup> thick), on short leafy peduncles less than a centimeter long bearing 3 or 4 small green leaves: mature capsules lanceolate conical on glabrous pedicels.

This description is based on Mr. Pringle's no. 6795. No staminate plant was collected. The species is related to *S. candida* which it

resembles in the general characters of the ament and the aspect of the whole plant. It differs from that species, however, in having broader leaves, not at all revolute nor rugose, no stipules, pedicel longer than the gland, style and stigmas relatively short. *S. paradoxa* Kunth differs from this species in having "capsulæ hirsutæ longè pedicellatæ, stylo nullo."

*S. CANA* Mart. & Gal.—Tree 5–7<sup>m</sup> high: twigs scantily canescent, older

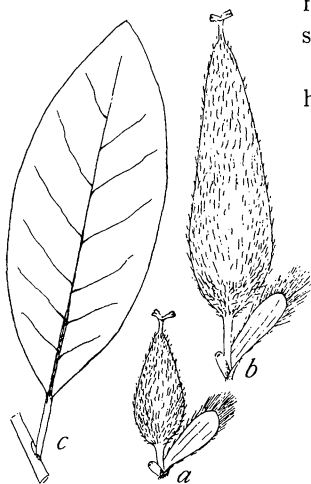


FIG. 1.—*Salix Pringlei*. *a* young capsule, with scale and gland; *b* mature capsule; *c* leaf.

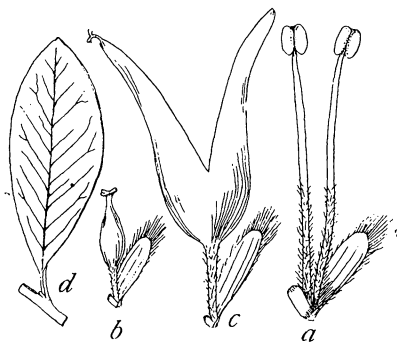


FIG. 2.—*Salix cana* Mart. & Gal. *a* ♂ flower; *b* young capsule; *c* mature capsule, dehiscent; *d* leaf.

shoots stout black and glabrous: leaves in vernation densely flocculent tomentose, becoming glabrous or nearly so when mature, green above, glaucous and prominently veined beneath, obovate or elliptical, apex acute or short acuminate, acute or rather abruptly contracted at base, entire, largest 6<sup>cm</sup> long by 2<sup>cm</sup> wide; petioles hairy, 5<sup>mm</sup> long; stipules minute or wanting: staminate aments large (3<sup>cm</sup> by 1<sup>cm</sup>); stamens two, filaments hairy below; scale obovate, apical half dark brown, ciliate; gland large, one half as long as the scale: mature pistillate aments large (7<sup>cm</sup> by 2<sup>cm</sup>), nearly sessile; peduncle at maturity only 1<sup>cm</sup> long and bearing four or five small leaves, rather closely flowered; full grown capsule (8<sup>mm</sup> long) ovate-conical, glabrous, minutely roughened; pedicel (2<sup>mm</sup>) hairy, gland less than one-half the length of the pedicel; bract oblong, slightly longer than the pedicel; style short (0.5<sup>mm</sup>). A capsule aborted at anthesis indicates that the bract is then about twice the length of the pedicel.

The original description of this species, as given in *Bull. Acad.*

*Brux. 10*: —, is based on a leafy specimen, the authors' own statement being "amenta ignota." Their description does not disagree with our plant, and the fact that both were collected in the same region and approximately at the same altitude, warrants the conclusion that they belong to the same species.

As will be seen, the above description is drawn from a staminate branch at anthesis and a pistillate branch when the capsules are mature. They are Mr. Pringle's no. 6794.

This species belongs to the *Cordata* group and is closely related to *S. lasiolepis* of California, from which it differs in having free hairy filaments, hairy pedicels, elliptical leaves, and large catkins.—W. W. ROWLEE, *Cornell University*.

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## A PECULIAR CASE OF SPORE DISTRIBUTION.

(WITH FIGURE 1.)

THE manner in which the spores of fungi may be distributed is clearly shown in a case which came under observation last September, in Columbus, Ohio. A grape vine, quite thoroughly infested with the mildew, *Uncinula necator* (Schw.) Burr., showed its characteristic circular spots in profusion. This was the condition over about two-thirds of the one affected vine, and the appearance of these leaves is shown in *a*, *fig. 1*. In the remaining third of the leaves the fungus forsakes its habit of concentric growth and follows a tortuous path, of the greatest irregularity and grace, as shown in *b* and *c*, *fig. 1*. A microscopic examination proved the fungus to be identical in the two cases, and the explanation of its diversity of habit must be sought in the mode of infection of the leaf surface. Holding the leaf in the light one can see, extending even beyond the fungus in its onward march, a glistening track ready for its approach. The peculiar gleam and the characteristic windings are almost proof that it was made by some animal crawling over the leaf and leaving a trail of its glutinous secretion. Sections show the track to be purely superficial, and we are led to conclude that this animal, be it worm or snail, has first visited leaves bearing mature asci and spores or conidia, and then, with its body laden with them, has crawled over another leaf in a tortuous path, freely sowing the spores, which promptly develop. The resulting white mycelium and conidia plainly mark the track.